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Environmental Impact Statement for Proposed Revision to Rail Carrier Noise Emission Regulation (Draft)

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16. ABSTRACT

This Environmental Impact Statement addresses the proposed noise emission regulation for railroad activities, other than line-haul operations. In arriving at the proposed regulation, the Agency carried out detailed investigations of railroad yard operations, noise sources, noise measurement methodologies, available noise control technology, costs attendant to noise control methods, possible economic impacts, and the potential environmental and health and welfare benefits associated with the application of various noise control measures. Data and information were generated as a result of these investigations. Summaries are presented of the more pertinent information regarding the environmental impacts expected to result from the proposed action.

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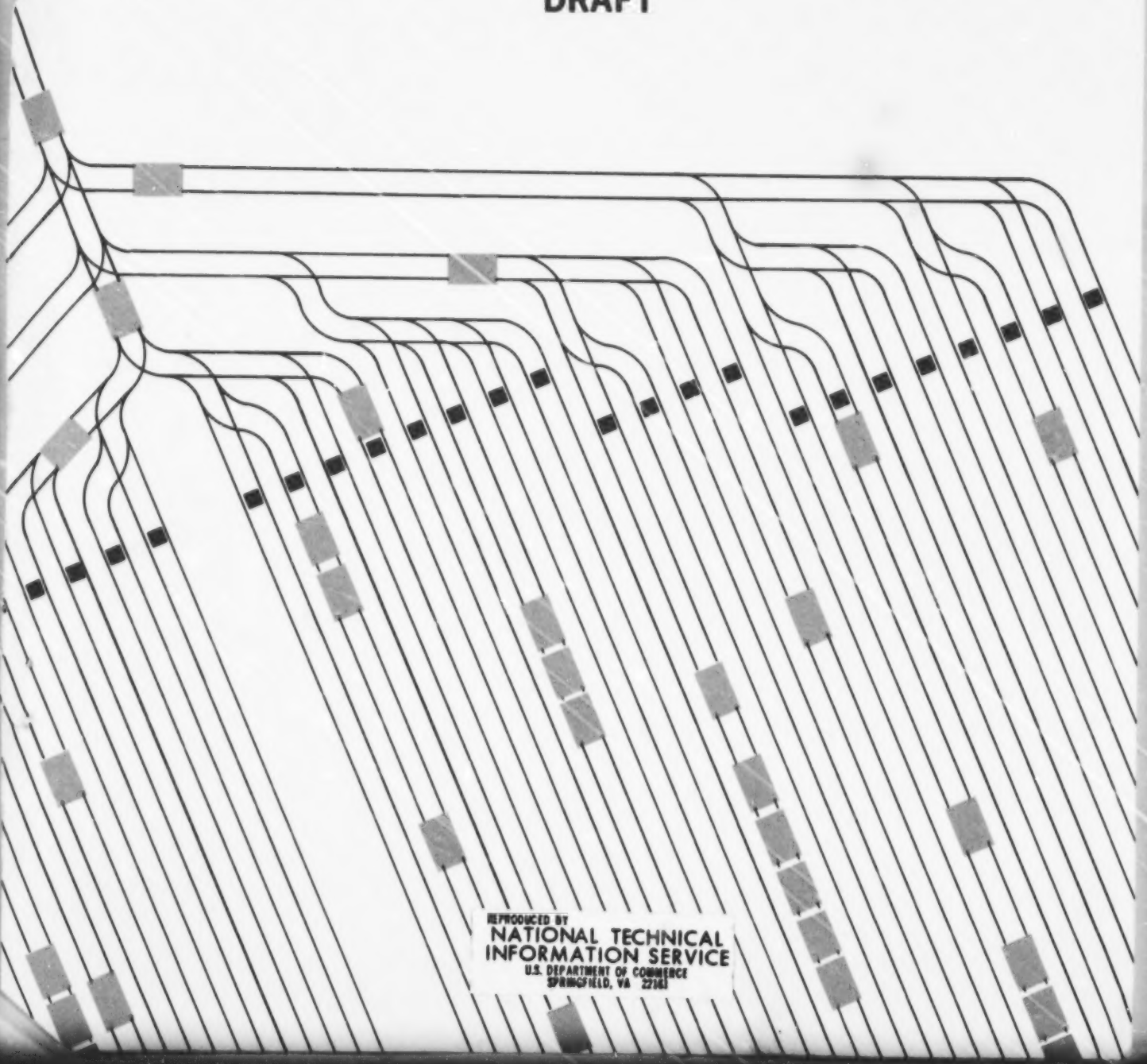

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ENVIRONMENTAL IMPACT STATEMENT
FOR THE PROPOSED
REVISION TO RAIL CARRIER NOISE EMISSION REGULATION

February 6, 1979

Prepared By

The U.S. Environmental Protection Agency
Office of Noise Abatement and Control

SUMMARY

1. TITLE OF ACTION: Revision of Railroad Noise Emission Regulation.

2. DESCRIPTION OF ACTION: The Environmental Protection Agency's proposed regulation is intended to reduce the level of noise emitted from railroad facilities and equipment. The regulation is also intended to establish a uniform national standard thereby eliminating inconsistent State and local noise source emission regulations that may impose an undue burden on particular railroad companies. The recommended action proposes to establish noise emission standards for most facilities and equipment of interstate rail carriers.

In arriving at the proposed regulation, the Environmental Protection Agency investigated in detail the railroad transportation industry, noise control technology, noise measurement methodologies, costs of compliance and economic impacts. Results of the research and analyses conducted in each of these areas is described in the "Background Document for Proposed Railroad Noise Emission Standards", dated February 1979.

3. IMPACTS:

a. Reduction in overall rail yard site noise levels and associated cumulative long-term impact upon the exposed population.

b. General improvement on the quality of life, with quietness as an amenity resource.

c. It is estimated that approximately 4 million people are currently exposed, at their residences, to noise which has been identified as potentially harmful to public health and welfare resulting from railroad operations. It is estimated that the proposed regulation will provide an environment free from annoying levels of railroad noise for about 830 thousand people and provide a varying degree of relief to the remaining exposed population. In terms of the overall extensiveness and severity of impact from railroad noise, the proposed regulation is expected to reduce the impact by 28.5 percent.

d. The total capital cost of the proposed standard is estimated to be $91 million. On an annualized cost basis this is $27.8 million per year through the year 2000.

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ENVIRONMENTAL IMPACT STATEMENT
FOR
RAILROAD NOISE EMISSION REGULATION

Abstract

This Environmental Impact Statement addresses a proposed noise emission regulation for railroad activities, other than line-haul operations. In arriving at the proposed regulation, the Agency carried out detailed investigations of railroad yard operations, noise sources, noise measurement methodologies, available noise control technology, costs attendant to noise control methods, possible economic impacts, and the potential environmental and health and welfare benefits associated with the application of various noise control measures. Data and information were generated as a result of these investigations. Summaries are presented of the more pertinent information regarding the environmental impacts expected to result from the proposed action.

Introduction

In accordance with Section 17 of the Noise Control Act of 1972, the U.S. Environmental Protection Agency developed a noise emission regulation for railroad locomotives and railcars which are used in interstate commerce. The regulation became law on December 31, 1975. The regulation was challenged in a suit brought against the Agency by the Association of American Railroads (AAR) on the basis that it did not establish standards for all of the facilities and equipment of interstate rail carriers as required by the Act. The U.S Circuit Court of Appeals for the District of Columbia has ruled that the Agency must broaden its scope of the existing rail carrier regulation.

Following the Court's decision, the Agency initiated investigative study and noise measurement efforts to develop the necessary information and data on which to base the regulation. The "Background Document for Proposed Railroad Noise Emission Standards" details the scope, context and breadth of the work

work conducted in support of the regulation proposed.* Section 2 of the Background Document characterizes the railroad industry from a physical and economic perspective. Section 3 identifies and classifies the railroad equipment and facilities studied, including railroad yard operations and activities. Baseline noise levels corresponding to railroad yard property line measurements and specific equipment and facility measurements are described in Section 4. Regulatory study levels related to a railroad yard property line standard are introduced in Section 5 with the "best available technology" to reduce noise emissions from the specified noise sources described corresponding to each regulatory study level. Section 6 describes and details the results of the railroad yard noise propagation model and the potential health and welfare benefits associated with various noise control measures. Section 7 describes the costs attendant to noise control methods to achieve various regulatory study levels and also details the possible economic impacts.

The Agency now proposes to revise the December 31, 1975 regulation to include standards which limit noise emissions resulting from the operation of most equipment and facilities of interstate rail carriers. These standards are based on the degree of noise reduction achievable through the application of "best available technology, taking into account the cost of compliance".** These regulations apply to both existing and new equipment and facilities.

THE PROPOSED REGULATION

Over 100 different combinations of levels and lead times were investigated as part of the background study. Appendix L of the "Background Document" details the principal options considered in the decision-making process. Standards are being proposed which would limit overall facility and equipment noise emissions.

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*Available from: EPA Public Information Center, (PM-215), Room 2194D, U.S.E.P.A., 401 M Street, S.W., Washington, D.C. 20460.

**Noise Control Act of 1972.

The standard to control overall facility and equipment noise is a receiving property limit. This receiving property limit establishes a definitive level of noise that can cross the boundary of a railroad facility onto adjoining or nearby property. Measurements are made on property around railroad yards to determine if the standard is being met.

Standards are also being proposed which would limit the noise caused by specific pieces of equipment, or operations of equipment, that have been identified as particularly annoying for the public. These standards apply to retarders, mechanical refrigeration cars and car coupling. Measurements are made at a specific distance from the equipment, or where the activity takes place, to determine if the standards are being met.

The proposed standards and effective dates for sound emanating from a railroad facility to a community location are presented in Table 1.

TABLE 1

Source	Receiving Property Standards, dB			Effective Date
	24-hour period	1-hour period daytime	1-hour period nighttime	
All Facilities & Equipment	70, L_{dn}	84, L_{eq}	74, L_{eq}	1982
Hump Yard Facilities & Equipment	65, L_{dn}	78, L_{eq}	68, L_{eq}	1985

Source	Standards, dB	Effective Date
Retarders	90, dBA at 30 meters	1982
Refrigerator Cars	78, dBA at 7 meters	1982
Car Coupling	95, dBA at 30 meters	1982

The proposed noise emission standard for retarders is a not-to-exceed A-weighted sound level of 90 dB at 30 meters from the center line of the nearest track. The effective date for the standard is January 1, 1982.

The proposed standard for mechanical refrigerator cars is a not-to-exceed A-weighted sound level of 78 dB measured at 7 meters from the center line of the refrigerator car rail track. The effective date of the standard is January 1, 1982.

The proposed standard for car coupling is a not-to-exceed A-weighted sound level of 95 dB at 30 meters from the center line of the track, at the point of contact, where car coupling takes place. The effective date of the standard is January 1, 1982.

The regulation encompasses noise from all facilities and equipment of interstate rail carriers, and it preempts state and local regulation of such carriers. State and local governments, as provided under Section 17 (c) (1) of the Noise Control Act, may adopt a standard that is identical to that which is ultimately promulgated by the EPA.

ENVIRONMENTAL IMPACT

The environmental impacts of the proposed regulation include the primary impact, which is reduced community and individual effects from railroad noise and the secondary impacts of other environmental considerations.

Approximately 4 million people in the United States are exposed to day-night average railroad facility and equipment, excluding mainline operations, noise levels of L_{dn} = 55 dB or greater. An L_{dn} value of 55 dB is the level of noise EPA has identified as being protective of public health and welfare with an adequate margin of safety. Compliance with the proposed standards for existing yards is expected to provide an environment free from annoying levels of railroad noise for about 830 thousand of the 4 million people exposed to railroad noise and provide a varying degree of relief to the remaining exposed population. In terms of the overall extensiveness and severity of impact from rail yard noise, the proposed regulation is expected to reduce the impact by 28.5 percent.

IMPACT ON OTHER ENVIRONMENTAL CONSIDERATIONS

o Land Use

It can be anticipated that the impact on land use will be beneficial. Noise regulation will make areas adjacent to railroad yards less noisy, thereby

opening new areas to commercial and residential development that previously had been too noisy for such uses.

o Water Quality

The proposed regulation shall have no adverse impact on water quality or supply.

o Air Quality

The effect of the proposed regulation on air quality would be insignificant. There are several counteracting considerations in regard to air quality. First, the estimated reduction in rail transportation would also result in a reduction of fuel consumption which is estimated at 40,000 gallons of diesel fuel annually. Counteracting this effort would be the small increase in fuel consumption due to muffler installation. Further, counteracting the reduction in operation would be the beneficial effect of shutting down idling locomotives. In any event, it appears that the resulting increase or decrease in air pollution would be relatively insignificant.

o Solid Waste Disposal Requirements

The proposed regulation should have no adverse effects on solid waste disposal requirements.

o Wildlife

Although wildlife may possibly benefit from reduced noise levels, not enough is known about such effects to arrive at definite conclusions.